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**Open Access****The Development of Indicators for Social Enterprise Business Model in Melitourism**Hanilyn A. Hidalgo<sup>a</sup>, Mia Bella R. Fresnido<sup>a\*</sup>, Amelia R. Nicolas<sup>b</sup>, Presbel B. Presto<sup>c</sup>

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**ABSTRACT:**

Melitourism is a special type of farm tourism that utilises stingless bees as a tourism product. However, stingless beekeeping is not a primary livelihood for most curious beginners, such that the business aspects of the operation are often neglected. This paper aims to develop a model for melitourism social enterprise. With the appropriate entrepreneurial framework, the residents, the local government, and the local businesses will be able to participate and benefit from the melitourism process. The study used an extensive review of more than a hundred literature. The development of the model was anchored on Isenberg's Entrepreneurial Ecosystem and Sustainable Livelihood. The results comprehensively discussed ten components: human capital, financial capital, market access, bioecology, technology, ethics, tourism, culture and heritage, policy, and social capital. Transitioning from conventional beekeeping to melitourism needs careful planning on the part of the farmers. Simply having a passion for beekeeping is not enough. Bee farmers operate within an entrepreneurial ecosystem wherein they must collaborate with policymakers, residents, and organisations

**KEYWORDS:** Stingless Bees, Entrepreneurship, Farm Tourism, Meliponiculture

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**INTRODUCTION**

Despite the abundance of biodiversity in many rural communities, beekeeping in the Philippines is not yet considered an industry because of the lack of economies of scale and scope (Rivera, Alcantara & Harikumar, 2020), unlike other countries with strong beekeeping culture. With a small amount of investment needed to start an apiary, many are encouraged to start on a micro or household level. However, beekeeping is not a primary livelihood for most beginners, the business part of the operation is often neglected. Serious beekeepers continue to explore ways to innovate their practices amidst the risks involved in this business. Entrepreneurs with access to human, financial and social capital are more likely to succeed

because of the innovations developed from the capitals (Omri et al., 2015).

While farm tourism has been gaining popularity in the agriculture sector, the integration of entrepreneurship in farmers' operations has not been emphasised. In diversifying into agritourism, customer service, managing finance, and marketing are the most critical skills (Phelan & Sharpley, 2010). Melitourism is a bottom-up driver rooted in local communities as most of the stingless beekeeping business ideas come from the extension works of the academe, where one of its mandatory functions is towards social transformation.

## LITERATURE REVIEW

Entomotourism attracts millions of visitors worldwide, generating income and providing employment to people. Apitourism and melitourism are special types of entomourism that feature bees. In melitourism, visitors get to interact with stingless bees. It is more specialised and less popular than apitourism. Apitourism is popular in Europe (Wos, 2014), particularly in Slovenia (Šivic, 2013), Bulgaria (Grigorova, Timareva, & Shopova, 2016), and Ukraine (Topal et al., 2021). Countries such as Hungary, Romania, Chile, and Indonesia are likewise leaders in implementing apitourism (Tisler & Suligoj, 2020; Suligoj, 2021; Gandhi et al., 2019).

Stingless beekeeping is an emerging industry in Thailand (Chuttong et al., 2014) and Uganda (Chemurot et al., 2021). It may represent a social-economic input in many tropical areas, especially those experiencing serious economic and social needs (Arih & Korošec, 2015). Stingless bees can be domesticated to exploit hive products such as honey, bee bread, propolis, and crop pollination (Salatino et al., 2019). The gentleness of stingless bees provides opportunities for visitors to have a close, harmless interaction with these insects, which may help them overcome their fear of bees (Vienne, 2017). In Mexico, melitourism is being developed, offering tourists spa treatments and food, health, and beauty products (Gerosa Bellows, 2011).

Incorporating tourism with stingless beekeeping, known as melitourism, is believed to generate revenues and create employment for a country's socio-economic development (Arih et al., 2015). However, the application of social entrepreneurship in melitourism remains unexplored.

Several authors have used different criteria to assess the potential of an area for apitourism, but not on melitourism. These criteria were apitourism information system and promotional activities (Suna, 2018; Insani et al., 2020; Arih & Korošec, 2015); organising and providing ecological infrastructure (Beigi, 2018); planning and policy-making; quality of apiaries' tourist attractions; awareness and education (Wos, 2014); providing services required by tourists and accommodation facilities (Suna, 2018; Insani et al., 2020); investment; policymakers pro-ecological attitude (Wos, 2014; Hegarty & Przeborska, 2005; Arih & Korošec, 2015); area location (Insani et al., 2020); seasonality of tourism demand; cooperation and coordination between institutions and organisations involved (Wos, 2014; Arih & Korošec, 2015); economic benefits; government proposal to support apitourism practices (Insani et al., 2020; Wos, 2014); pricing (Suna, 2018); holding festivals (Bršćić et al., 2013); tourists' demand (Fathi et al., 2022).

In Bulgaria, Grigorova et al. (2016) analysed the current status, trend, and prospects of the resource base for apitourism, wherein they identified insufficient knowledge, skills, and

competencies of honey producers and bee products as well lack of advanced product policy were identified as development deterrents. The report on resource base was based on traditions, state, production, and marketing of honey.

In Turkey, the potential for apitourism was assessed using a SWOT analysis to determine the strengths and weaknesses, opportunities, and threats. Turkey's strong points are a high genetic diversity of flora and advanced apitherapy application. However, this country has weak promotional and marketing activities as a bee route, causing low awareness; hence, apitourism is less developed (Arih et al., 2015). Despite the high adequacy of infrastructure, apitourism development in Bulgaria is slow due to the lack of information by producers on product development and diversification at the regional level [Suna 2019].

Vegetation, tourism, precipitation, temperature, roads, rivers, and production areas of genetically modified crops were considered when assessing the adequacy of beekeeping in Chile using GIS. It was reported that the model identifies priority areas for resources and efforts needed to develop beekeeping (Grigorova et al., 2016; Pantoja et al., 2017). Through their study, the socio-economic and environmental criteria for defining the apitouristic suitability of the territory were identified.

By exhaustively reviewing literature related to beekeeping and tourism, it can be said that most previous studies focused on apitourism and none on melitourism. A thorough literature search did on the assessment of the potential of an area for melitourism, especially in regions where stingless bees exist and are used commercially, failed to show results. Furthermore, the researchers have had no success in finding literature on melitourism as a social enterprise.

## OBJECTIVES

Generally, this paper sought to develop a social entrepreneurial framework for melitourism. Specifically, this study aimed to: (1.) determine the entrepreneurial ecosystem components necessary in developing a melitourism social enterprise; and (2.) identify the indicators that support the components of a melitourism social enterprise.

## METHODOLOGY

The study used a qualitative method to develop the framework for melitourism social enterprise using an array of published articles on stingless beekeeping and entrepreneurship. Upon exploring the concepts of melitourism social enterprise, the team felt content analysis was an appropriate tool to identify the components and indicators of the proposed model. It used an extensive literature review covering four major themes: meliponiculture, entrepreneurship, policy, and tourism. We also used these four keywords to systematically collect relevant studies that would support our aim of developing a model for a melitourism social enterprise. We anchored our model on Isenberg's Entrepreneurial Ecosystem, which consists of six domains: policy, finance, markets, human capital, support, and culture. More than 100 literature were gathered for this paper. The literature reviewed was categorised into ten components supporting a melitourism social enterprise model.

In developing indicators for melitourism social enterprise, a systematic review of the literature was performed to determine the consensus and divergence of theories and research articles.

The keywords “meliponiculture, entrepreneurship, policy, and tourism” were used to scope the themes that define the melitourism social enterprise. The first part was to read more than 100 articles and identify the main contributions, frameworks, and significant findings related to the study. The articles were then categorised into themes to understand the literature better and develop a framework.

The study was analysed using the Isenberg Entrepreneurship Ecosystem model, where six domains were identified to create a virtuous cycle conducive to entrepreneurial development. These domains include policy, finance, culture, supports, human capital, and market. Isenberg argues that the success of an entrepreneurship process does not rely on one factor. It requires a distinct ecosystem that interacts with the other components of entrepreneurship which we find suitable in our model. The Livelihood Sustainability framework, with its five assets: natural, human, financial, physical, and social, became our basis for integrating other components such as social capital, ethics, tourism, bio ecology, and technology to harmonise the themes on meliponiculture, entrepreneurship, policy and tourism.

In our previous study on the beekeeping industry, issues like bee exploitation, traceability, and honey adulteration appeared as barriers to developing the beekeeping industry. These issues were integrated into the melitourism entrepreneurship model to balance biodiversity and livelihood. A literature review was done extensively to validate the integrated components to conform with the attributes associated with stingless beekeeping in rural communities. The modified framework was used to develop melitourism development indicators necessary to formulate an assessment tool based on environmental, technological, socio-economic, tourism, and governance aspects. The indicators were identified based on the experiences and aspirations of the stingless beekeepers with scientific support from the literature.

## RESULTS AND DISCUSSION

### *Melitourism Social Enterprise Indicators*

#### *Human Capital*

In a meta-analysis review, human capital is a significant factor in entrepreneurial success, particularly in task-related industries. Outcomes of human capital such as knowledge and skills were associated with the growth and profitability of the business. Hence, improving this asset should manifest in learning, acquiring, and transferring to entrepreneurial tasks (Unger, Rauch, Frese, & Rosenbusch, 2011). The success of an enterprise is associated with the entrepreneur. Unique business knowledge and experience strongly predict entrepreneurial success (Staniewski, 2016). Hence, it is expected that those who have been in the business for a long time have better chances for entrepreneurial success.

In the context of economic development, various literature has proven that human capital is one key driver of innovation (Mariz-Pérez et al. (2012); D'Este, P. et al. (2014); Diebolt, C., & Hippe, R. (2019); Lee, S. Y., Florida, R., & Gates, G. (2010). Innovations are caused by people's continuous engagement in education, training, and experiences translated into technological developments. Unfortunately, it is difficult to attract and retain creative people in agriculture (Smolová, Kubová, & Urbancová, 2018). The lack of means to impart innovations in the market can generate an entrepreneur in the society (Hamdi-Kidar & Vellera, 2018). The vision, goal, and business model should be aligned according to the target market (Smolová, Kubová, & Urbancová, 2018). Consequently, an entrepreneurial culture should exist to promote success in innovations of sustainable businesses (Fellnhöfer, 2017).

### *Financial Capital*

Finance plays a critical role in the survival and growth of SMEs. Social entrepreneurs perceive that institutional barriers, e.g. lack of financial and information support, can affect their sustainability goals more than traditional entrepreneurs (Hoogendoorn, Van der Zwan & Thurik, 2019). Financing barriers include collateral requirements required by banks and preference for industries with higher returns. Hence, the enterprise's sustainability is compromised without efficient working capital management and easy access to finance (Lawal, Worlu & Ayoade, 2016). Plans to expand, innovate and diversify often cease when faced with difficulties in financing schemes. Capital and finance are significant barriers to diffusing innovations (Long, Blok & Poldner, 2016), and beekeepers need capital to innovate and expand their apiaries.

For an opportunity-driven type of enterprise to thrive, a high level of education and good financial standing is needed (Cervelló-Royo, Moya-Clemente, Perelló-Marín & Ribes-Giner, 2019). Farmers and beekeepers in rural communities are comparable to informal sector entrepreneurs with poor market access, low skills, and unstable income (Jiyane & Zawada, 2013). Their sense of financial well-being is based on a daily survival lifestyle. Hence, financial education is necessary to sustain a business (Smolová, Kubová, & Urbancová, 2018).

### *Market Access*

Access to the right information is associated with entrepreneurial success (Makhbul & Hasun, 2011). The networking abilities of the entrepreneurs provide means to capture relevant and timely information for decision-making. Even at a household level, overcoming risks in availing institutional support such as market access had favourable effects on agricultural entrepreneurship (Sinyolo, Mudhara, & Wale, 2017). Davies and Chambers (2018) described networks as the core of commercial entrepreneurialism.

With technological advancements, access to information and markets becomes easier. The use of social media, for instance, has offered greater market penetrability, which can result in the growth of SMEs (Jagongo & Kinyua, 2013). Ahmad, Shamsudin, & Kadir (2016) supported this claim, proving that market access is a strong factor for growth. In the entrepreneurial ecosystem of Suresh & Ramraj (2012), market access is limited to the capacity of the entrepreneur or farmer and the opportunities provided by the government and trade associations through relevant and punctual reports that may affect the government governments' marketing decisions. Trade shows offer an economical and convenient way to promote farm products and services. For farm tourism enterprises, the outcome of market success is manifested by customer experience and satisfaction (Capriello, Mason, Davis & Crotts, 2013).

### *Bioecology*

The environmental window, consisting of optimal ambient temperatures and resource availability, is critical to the foraging success of a bee species (Stone *et al.*, 1999; Hilario *et al.*, 2000). The flowering and optimal foraging temperature should match to expect an increased colony food intake and efficient brood production (Maia-Silva *et al.*, 2014; Ribeiro *et al.*, 2003; Ferreira-Junior *et al.*, 2010). The timing of food collection (daily onset and end) and the food patch choice (sunny versus shaded patches) are primarily influenced by abiotic factors (Biesmeijer *et al.*, 1999; Pereboom & Biesmeijer, 2003; Hrnčir & Maia-Silva, 2013). Foragers would intensify food storage in the season (i.e., summer) with higher food availability and higher temperatures, probably to optimise the maintenance and survival of

the colony during periods of food scarcity or dearth (Aleixo *et al.*, 2017). Thus, foragers must maximise abundant floral resources during summer.

Changes in rainfall pattern, temperature, and other climatic factors could affect the floral pattern of bee forage plants, resulting in low honey and crop yield and increasing meliponary maintenance costs. Thus, the communities have to determine the pollen, nectar continuously, and propolis sources of the stingless bees as well as bloom pattern, biotic, and abiotic factors to ensure the success and sustainability of meliponaries (Mostoles, 2018).

The food source is also a component of bioecology. Honey yields were better in areas planted with coconut (*Cocos nucifera*), acacia (*Acacia mangium*), rubber (*Hevea brasiliensis*), durian (*Durio zibethinus*), and air mata pengantin (*Antigonon leptopus*) (Mustafa *et al.*, 2018). Palms are an essential pollen source of *Tetragonula biroi* (Balderas, 2016) and the best option for a meliponary landscape. Large inflorescences or flower heads with many small flowers, such as palms, are also good bee forages. The foraging bee must visit only one or two flower heads or inflorescences to make its quota on a forage flight (Jalil, 2018).

Similarly, the pollen loads and honey of stingless bees are influenced by the floral resources, local vegetation types, and the quality of the bee products (Barth, 2012; Abduh *et al.*, 2020). In addition to a diversity of floral resources, resin sources are needed. It is important to list local plant species that produce resins attractive to bees and plant those species on the farm (Heard, 2018).

Meliponary location must also be considered. In Australia, most beekeepers keep their beehives in more than one location. They raise stingless bees in suburban areas (56%), farmland (24%), and natural bushland (20%) (Heard & Dollin, 2000).

Farms may be hostile environments for bees if insecticides are used heavily and little plant variety exists. Also, homogenous monocultures provide few alternative food sources for bees or other wildlife (Heard, 2018). A permanent colony residence works particularly well in more heterogeneous environments that provide resources year-round. An agricultural ecosystem comprising a mix of multiple crop species, natural bushland, and ornamental garden plant species (e.g., Malaysian palm and dipterocarp species) is particularly favourable for social bees (Heard, 2018).

Hives need to be placed in situations that provide the best microclimate. Depending on the circumstances, this may be a shaded or sunny position (Heard, 2018). Stingless bee colonies should be kept in shaded areas to avoid overheating (Quezada-Euán, 2018; Ashari *et al.*, 2019). Sun protection is important and must be addressed in any meliponiculture setup.

In Sungai Ajung Village, Indonesia, there was an 80% mortality rate of colonies since colonies were not put in hive boxes and were submerged in flood. While in Saujung Giling Manik Village, the colony box is placed at a high location (1.5 - 2 m from the ground), so the colony can survive even when floods hit (Ashari *et al.*, 2019).

*Hive placement.* Stingless bee hives should be well separated, not facing each other's hive entrance, to avoid drift and fighting (Heard, 2018; Ashari *et al.*, 2019). Hives need to be mounted at least 1 m above the ground to protect them from decay associated with high humidity and gain some protection from termites (Ashari *et al.*, 2019).

Statistical analysis shows that *T. biroi* species prefer the feeders located 1m away from the hive, the shortest distance used in the experiment. Results also show that these bees have no

conclusive preferred direction, resulting from the non-apparent cause, such as random search. In addition, the bees prefer the feeders located 1m above the ground, directly in front of the hive opening (Ciar *et al.*, 2013).

### Technology

*Honey harvesting and processing.* To raise the quality and value of honey, it must be dehydrated from 35% to 18% as it prevents fermentation (Mustafa *et al.*, 2018). Researchers from Malaysia have uniquely designed the Honey Interlinked Dehydration and Dispense Apparatus (HILDA), an integrated platform for hygienic honey harvesting, water dehydration without a heating element, and bottling (Mustafa, Yaacob, & Sulaiman, 2018). Honey harvested using manual and mechanical means such as drip method, squeeze method, and press method using extractor has high moisture content because it contains ripe honey and unripe ones. As a result, honey ferments faster, lowering its quality and price (*pers. obs.*). Also, honey should be allowed to settle for at least a week and undergo further processing (i.e., pasteurisation (BAFS, 2016).

In Sorsogon, Philippines, beekeepers have manually extracted honey from the beehives due to the lack of an efficient extractor. Harvested honey was exposed to contaminants and packed in plastic bottles. When packed in plastic bottles, acidic honey of stingless bees may cause adverse reactions, thus lowering its quality. Moreso, when honey is stored longer in plastic bottles could lead to spillage, resulting in reduced quantity (Mostoles, 2019).

*Propolis production and harvesting.* *Trigona* spp propolis production is influenced by the beehive design. Researchers from Yogyakarta, Indonesia, experimented with the efficiency of different wooden hive designs with varying sizes to trigger *Trigona* bees to produce propolis (Agussalim *et al.*, 2015).

A recent study on *T. laeviceps* is the Modular Tetragonula Hives (MOTIVEs) which is equipped with a detachable propolis frame containing small holes that trigger stingless bees to fill in the holes with propolis. Unlike the conventional method, which may damage the bamboos during the harvesting of propolis and honey, MOTIVEs minimise potential disturbance and damage to the bee colonies (Hakim and Abduh, 2019) and separate propolis from the bees and non-propolis products on the propolis frame. Using MOTIVEs to cultivate *T. laeviceps* may improve propolis' sustainability, production, and quality compared with conventional cultivation using bamboo (Abduh *et al.*, 2020).

*Hive design.* Venturieri *et al.* (2018) revealed that a compartmentalised hive, separating honey pots into a super, is necessary for easy harvesting and less disturbance to larvae and young bees. In Africa, a simple compartmentalised hive called icipe-4M hive design was invented to solve the problems of stingless beekeepers on colony loss and reduced honey yields by using simple hollow log hives (Nkoba *et al.*, 2016). This design provides better housing for the bees, increases the amounts of honey harvested, and facilitates colony multiplication.

According to Heard (2018), good hive designs provide correct internal volume, allow safe and reliable propagation by colony division, ensure good insulation and ventilation, cheap and easy to make, and durable in outdoor conditions but small and light for transportation.

*Artificial queen rearing.* Traditionally, stingless bee colonies split and double their colony amount according to species (Palial *et al.*, 2019). One of the main problems with cultivating stingless bees at a large scale is that they naturally reproduce at a very low rate (Slaa *et al.*, 2006). The process and procedure usually happen every one to two years, thus extending the

time to maintain and stabilise the colony after the multiplication process (Palial *et al.*, 2019).

A more advanced approach in colony splitting is via *in vitro* queen rearing. Due to the typically fewer queens in most bee colonies, *in vitro* queen rearing aims to produce more queens in a colony (Palial *et al.*, 2019). *In vitro* queen production may be useful for both colony multiplication efforts and genetic improvement programs (Laidlaw & Page 1997).

### *Tourism*

In this research, farm tourism operators must have a strategic plan in place that details the marketing and development activities as well as the participation of the local community as the latter is key to a satisfactory visitor experience (Beeton, 2006). Marketing the farm to the visitor market is vital for it to be included among the choices in the decision-making stage of the tourists (Lago., 2017).

Forbord et al. (2012) stated that farm tourism-based organisations are instrumental in the farmers' adherence to providing quality products and services (Forbord, M., Schermer, M. and Griebmair, K., 2012). In the Philippines, the Department of Tourism (DOT) oversees criteria for minimum standards outlined in E.O No. 292. These criteria are used to evaluate farm tourism sites wishing to be accredited. Accreditation results in being included among the establishments actively promoted by the DOT.

A wide range of products enhances the tourist experience as this allows visitors to be involved in farm activities, enjoy farm-based culinary offerings and interact with farm animals (Forbord, M., Schermer, M. and Griebmair, K., 2012); Shang-Yu, L., Chen-Ying, Y., Kuang-Nan, T. and Wei-Shuo, L., 2017).

While offering various tourism products, it is also important to have a unique farm product central to the tourism operations of a tourism site (Shang-Yu, L., Chen-Ying, Y., Kuang-Nan, T. and Wei-Shuo, L., 2017; Boonratana, 2011). This agricultural product will reveal many things about the farm destination, such as the professional competencies of the farmer, his special skills and that of the people working with him. The farm product's uniqueness will impact the branding of the farm as a destination for tourists (Shang-Yu, L., Chen-Ying, Y., Kuang-Nan, T., and Wei-Shuo, L., 2017).

Forbord et al. (2012), citing Smith (1994), reported that landscape and farm experience is basically what makes up farm tourism (Forbord, M., Schermer, M. and Griebmair, K., 2012). Scaliogne and Mendola (2016) confirm this, showing that farm visitors enjoy the natural landscape. This was supported by Lago, (2017) when he revealed that tourists are highly motivated to visit farms to enjoy peaceful rural surroundings. It also showed that motivation is high for visitors to relieve stress and anxiety amid this environmental backdrop.

### *Tourism community*

One factor to consider in community-based tourism is the willingness of residents to participate in the tourism process. Residents have a positive attitude towards inclusive tourism because it also benefits them (Petrović et al., 2017).

The local government must be deeply involved in community-based tourism since it has access to resources such as funding and the expertise that can be dispensed through advice and services (Beeton, 2006; Stanovčić, T., Peković, S., Vukčević, J. and Perović, D., 2018). In some cases, farmers whose farms are transitioning into agritourism are not equipped with the skills

necessary to operate the business (Rogerson, C.M. and Rogerson, J. M., 2014). The local government can identify what the various tourism stakeholders lack and can address these needs through policy formulation (Mweiwa, V.R., Chilembwe, J.M. and Mankhomwa, E., 2020). It is also the agency charged with developing and maintaining the community's basic infrastructure that can serve as tourism infrastructure. They must actively participate in community decisions (Beeton, 2006, Li, 2012). One example of how the local government can help the farm tourism operator is training on delivering tourism services and pegging the right price for them (Beeton, 2006).

The entire community will feel tourism impacts ranging from positive to negative, so everyone must have a voice in decision-making through local groups. The community and the local groups must be present starting from the development stage of a certain plan until its enactment (Beeton, 2006). A study shows that when residents are involved in participatory decision-making, they are supportive of tourism (Petrović, M.D., Gelbman, A., Demirović, D. Gajić, S. and Vuković, D., 2017).

Involvement of tourism stakeholders in promoting the destination results in a concerted effort that further strengthens the destination's branding initiatives, as in the case of some civil war sites in Spain which cater to the dark tourism market. (Alabau-Montoya, J. and Ruiz-Molina, M., 2020).

### *Culture And Heritage*

Presenting the local culture to visitors is an integral part of the tourism process to awaken the interest of tourists and motivate the local people to preserve it, which is what propelled the residents of an agricultural village in Yunnan, China, to restore their old village temple (Li, 2012). It is important to draw the line between a sincere desire to introduce the community's culture to visitors and romanticise farm life resulting in an artificial presentation and imagery of the locality's way of life (Karampela, S. and Kizos, T., 2018). Cultural tourism offerings such as festivals must highlight the community's personality regarding authentic practices and traditions and present the community positively (Beeton, 2006; Pansukum, S. and Swanson, J. R., 2018). Some tourists, among them the millennials, look for authenticity in their travel experience (Bernardi, M. and Ruspini, E., 2018). A study by Hugo and Lacher (2014) shows that tourists participating in an agritourism festival cited cleanliness and good food as important factors determining their satisfaction level.

Creative tourism came about because of the stiff competition among destinations branding themselves as cultural destinations (Richards, G. and Raymond C., 2009). It is a form of tourism allowing tourists to manifest their creativity through participatory experiences with the local community's knowledge, traditions, and practices (Zhang, Y. and Xie, P. (2017 c.f. Richards, 2011). Zhang and Xie's study shows that participation in local culture may be one of three success factors of a destination.

Heritage tourism, which forms part of cultural tourism (Bui, H.T., Le, T. and Ngo, P., 2018 c.f. King, 2016), encompasses visitation to heritage sites. These heritage sites should be viewed as assets that will enhance the competitiveness of a destination (Hawkins, D. and Elliot, S., 2009). They should be accessible to the tourists without compromising their use by the locals and without damaging their structural integrity (Garrod, B. and Fyall, 2000). In the same study, Garrod and Fyall further state that tourism has an educative role in letting visitors learn about the site, its importance to the community, and why it must be preserved. In addition, Zhang and Xie (2017) also stated that local architecture attracts tourists because they vastly differ from what they encounter in their normal lives.

## Policy

Expanding farm enterprises to melitourism can provide financial soundness and add diversity to farm tourism. Still, it also calls for focused policies (Bhatta & Ohe, 2020; Clemente et al., 2019; Giaccio et al., 2018; Shah & Kumar, 2016) and regulations that would help in agricultural restructuring based on farm resource base, autonomy, and value-adding, thus helping in optimum commodification of the farm assets (Shah & Kumar, 2016).

One of the highly researched topics on agritourism is policy or strategy (Rauniyar, Awasthi, Kapoor, & Mishra, 2020; Flanigan et al., 2015; Galluzzo, 2017; Lupi et al., 2017). This can be attributed to preference of important journals on policy analysis related to agritourism and its externalities like farmers' distress, migration-related policies, and increasing environmental concern since policies have a trickle-down effect on the farmers pursuing agritourism and similar practices (Giaccio et al., 2018). These multifarious pieces of research on policies on agritourism reveal that policy is indeed a very important component of agritourism.

Farmers' difficulty in investing in agritourism varies between developed and developing countries (Malkanathi et al., 2015; Barbieri, 2013). In the case of developed countries, farmers have better access to government support and subsidies, both at the policy and operational levels; however, these benefits are still unavailable in many developing countries like Nepal (Bhatta & Ohe, 2020).

In terms of melitourism, some operators explained that urbanisation, deforestation, modified food crops, apicultural practices, government regulations, and Africanized bees further threaten the sustainability of meliponiculture in Mexico (Lemelin, 2020). This has been supported by the study of Hidalgo, Nicolas, & Cedon (2020) and Jovillano-Mostoles (2018) that the development of the stingless bee honey industry must be coupled with policy recommendations on the conservation and preservation of wild or feral colonies, quality standards for cultured honey and other bee products, regulation of pesticides in active beekeeping areas, the conservation of vegetation near riverbanks (riparian), and the promotion and establishment of forest reserves, parks, and gardens to create more sanctuaries for stingless bees.

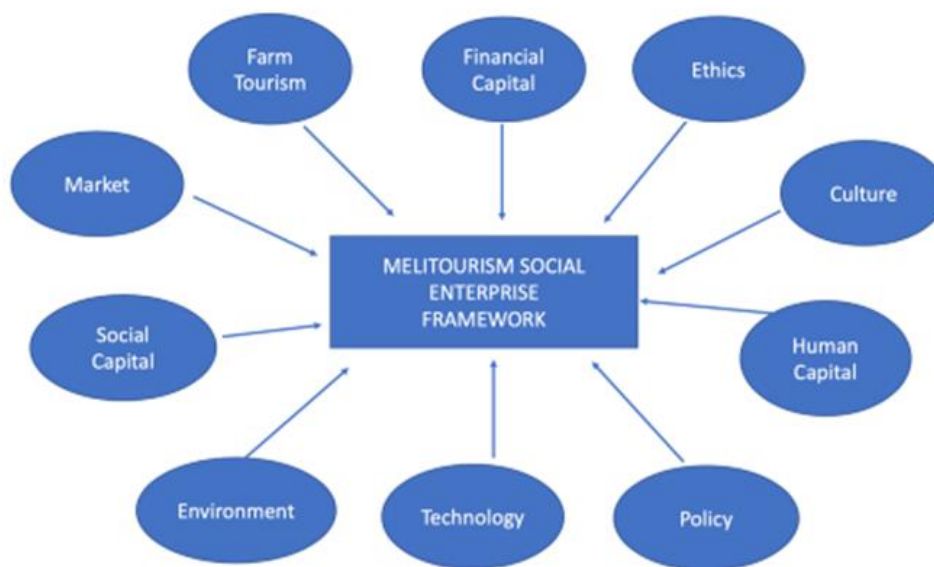
## Social Capital

Studies revealed that there is agreement on the relevance of social capital in the ability of rural communities to manage and respond to the economic, social, and environmental pressures in an attempt to guarantee sustainable development (Mathijs, 2003; Jordan et al., 2010; Munasib and Jordan, 2011). Accordingly, new empirical research has shown that rural communities endowed with a rich stock of social capital (social networks and norms and values associated with social relationships) are stronger in resolving disputes, sharing useful information, and implementing successful development projects (Trigilia, 2001; Woodhouse, 2006; Nardone et al., 2010).

It must also be noted that when establishing agritourism, farmers might face opposition from locals who think tourism will negatively impact natural and cultural (Malkanathi, 2015; Petrovic et al., 2017; Shah et al., 2020). Tourism development in a destination is a joint effort of the community; if a group of people is against the development of agritourism, it will be difficult (Cottrell et al., 2017). Hence, when establishing agritourism in developing countries, the promoters should also try to link the residents to the tourism industry to avoid local opposition (Bhatta & Ohe, 2020).

### Framework of Melitourism Social Enterprise

To illustrate the model, the figure below shows the framework of melitourism social enterprise. The research project is expected to show evidence of an entrepreneurial ecosystem for sustainable rural-based melitourism. The evidence is reflected in the entrepreneurial ecosystem it may create, including changes in entrepreneurial competencies, policies, and funding prioritisation of local government. These are manifested in innovations and an enabling environment for melitourism.



**Figure 1: Melitourism Social Enterprise**

**Table 1: Components and Indicators of Melitourism Social Enterprise**

Component	Indicators	Source
Financial	Sources of working capital	Lawal, Worlu & Ayoade, 2016
	Access to formal credit	Can, 2013
	Access to non-formal credit	Can, 2013
	Financial well-being (to be added later)	Financial well-being scale
Human	Years of experience in beekeeping	Staniewski, 2016
	Age of beekeeper	Jaffe <i>et al.</i> , 2010
	Knowledge in stingless beekeeping	Staniewski, 2016
	Knowledge in tourism	Staniewski, 2016
	Number of farm tourism sites visited	Staniewski, 2016
	Experimental	Dryer, 2012
	Innovation /creativity	Dryer, 2012
	Questioning	Dryer, 2012
	Observing	Dryer, 2012
	Risk-taking ability/resilience level	Heard & Dollin, 2010
Market	Level of Networking skills	Davies and Chambers, 2018
	Number of Channels of promotion	Jagongo & Kinyua, 2013
	Number of Channels of distribution	Jagongo & Kinyua, 2013
	Level of Access to information	Jagongo & Kinyua, 2013
	Opportunities provided by the government	Suresh & Ramraj, 2012

Bioecological	Climatic Factors	Ciar <i>et al.</i> , 2013; Jaffe <i>et al.</i> , 2015; Jalil, 2018; Mustafa <i>et al.</i> , 2018; Heard, 2018
	Food Sources	Jalil, 2018; Roubik, 2018; Ismail <i>et al.</i> , 2018
	Hive distancing and positioning	Heard, 2018; Ashari <i>et al.</i> , 2019
	Hive height from the ground	Ciar <i>et al.</i> , 2013; Ashari <i>et al.</i> , 2019
	Hive location	Biesmeijer <i>et al.</i> , 1999; Pereboom & Biesmeijer, 2003; Hrnčir & Maia-Silva, 2013; Heard, 2018; Roubik, 2018; Jalil, 2018; Quezada-Euán, 2018; Ashari <i>et al.</i> , 2019
	Distance of food source from hive	Ciar <i>et al.</i> , 2013; Jaffe <i>et al.</i> , 2015; Jalil, 2018; Mustafa <i>et al.</i> , 2018; Heard, 2018; Mostoles, 2019
	Colony-food source ratio	Jalil, 2018
	Species used for domestication	Inoue <i>et al.</i> , 1993; Slaa <i>et al.</i> , 2006; Cervancia & Fajardo, 2012; Slaa, 2016; Mostoles, 2019
	Pests and diseases	Jaffe <i>et al.</i> , 2015; Jalil, 2018; Mustafa <i>et al.</i> , 2018; Heard, 2018
Technology	Use of modern hives	Agussalim <i>et al.</i> , 2015; Nkoba <i>et al.</i> , 2016; Greco <i>et al.</i> , 2010; Venturieri <i>et al.</i> , 2018; Roubik, 2018; Heard, 2018; Hakim & Abduh, 2019
	Artificial hive propagation	Laidlaw & Page, 1997; Nogueira-Neto, 2002; Slaa <i>et al.</i> , 2006; Jaffe <i>et al.</i> , 2015; ; Alves <i>et al.</i> , 2010; Baptistella <i>et al.</i> , 2012; Meneses <i>et al.</i> , 2013; Palial <i>et al.</i> , 2019
	No. of colony splitting per year	Mostoles, 2019; Palial <i>et al.</i> , 2019
	Use of advanced honey extraction technology	Mustafa <i>et al.</i> , 2019
	Use of honey conservation methods	Jaffe <i>et al.</i> , 2015
	No. of harvesting per year for each hive product	Mostoles, 2019; Ashari <i>et al.</i> , 2019
	Supplemental feeding during dearth period	Jaffe <i>et al.</i> , 2015; Ashari <i>et al.</i> , 2019
	No. of colony inspection per week	Jaffe <i>et al.</i> , 2015
Ethics	Adherence to ethical standards of harvesting and processing hive products	BAFS, 2016; Mostoles, 2019
	Stewardship of natural resources	Heard, 1998; Klumpp, 2007; Halcroft <i>et al.</i> , 2013; Jaapar <i>et al.</i> , 2016; Jalil, 2018; Mostoles, 2019; Ashari <i>et al.</i> , 2019
	Consideration of meliponary's carrying capacity	Jalil, 2018
Farm Tourism	Agritourism site offers a wide range of product offerings.	Forbord, M., Schermer, M. and Griebmair, K., 2012
	Agritourism site has a unique farm-based product that can be incorporated into the tourism process.	Shang-Yu, L., Chen-Ying, Y., Kuang-Nan, T. and Wei-Shuo, L., 2017

	Agritourism farm complies with minimum standards of products and services set by an accreditation body.	Forbord, M., Schermer, M. and Griebmair, K., 2012
	Agritourism site has landscape and views that relaxes visitors.	Lago, N. A. A., 2017
	Locals are willing to participate in the tourism process and have a positive attitude about tourism	Petrović, M.D., Blešić, I., Vujko, A. and Gajić, T., 2017
	Community participates in decision-making through local groups.	Beeton, 2006
	Local government supports tourism development and has a participatory role in planning, development, and implementation.	Beeton, 2006; Yi, 2012; Petrović, M.D., Blešić, I., Vujko, A. and Gajić, T., 2017
	All tourism stakeholders are actively involved in promoting the farm and the community as a destination.	Alabau-Montoya, J and Ruiz-Molina, M., 2020
Culture	Cultural tourism offerings highlight the community's authentic personality positively.	Beeton, 2006; Yi, 2012; Karampela, S. and Kizos, T., 2018
	The community's culinary specialties are part of the primary offerings, especially during community events and festivals.	Hugo N. and Lacher R.G., 2014
	Community enhances visitor experience through hands-on participation in handicraft and/or culinary creation, traditional healing practices, and other traditional skills and knowledge.	Richards G. and Raymond, C., 2009
	Cultural structures are physically well preserved and presented through a narrative that highlights their cultural importance.	Garrod and Fyall, 2000
Policy	Presence of Tourism and Environment Protection/Conservation Laws and Policies	Clemente et al., 2019 Juan, M., & Ignacio, G., 2019
	Existence of Research-based Policy Recommendations	Jovillano-Mostoles, 2018; Hidalgo et al., 2020
	Existence of focused Tourism Policies that are aligned to local tourism policy and cohesive with national government goals	Bhatta & Ohe, 2020 Clemente et al, 2019 Giaccio et al., 2018 Shah & Kumar, 2016
	Quality of Regulatory Governance	Clemente et al., 2019 Juan, M., & Ignacio, G., 2019
Social Impact	Presence of People's Organisations	Juan, M., & Ignacio, G., 2019
	Presence of Registered Civil Society Groups	Juan, M., & Ignacio, G., 2019 DA-BAR, 2020 Quimbo & Sulabo, 2016
	Safety Measures for Tourist	Juan, M., & Ignacio, G., 2019
	Absence of Terrorism and Violence	Juan, M., & Ignacio, G., 2019

### Implications

This study presents success indicators covering different components of operating a sustainable agritourism enterprise revolving around stingless bees. It breaks down the components so the farmer entrepreneur can easily examine one component separately, e.g., the financial aspect.

However, later he can make a synthesis and be aware of how the financial aspect works along with the other success indicators or components.

Government planners and developers can also benefit from this study since they will know what kind of financial or policy-wise support local farmers will be needed to operate a more inclusive and sustainable agritourism enterprise that will benefit the farmers and the residents of the community. They can also ensure that cultural heritage is minimally impacted by agritourism.

Melitourism differs from other agritourism enterprises because it deals with biological assets that may be abused, although unintentionally, in business and tourism. Hence, ethical practices in dealing with stingless are also highlighted here.

Stingless bee farm tourism operators are in the best position to venture into the social enterprise as consumers are becoming more conscious of where their food comes from. A study by Welteji and Zehirun (2018) reveals that tourists are hesitant to patronise farm products in a destination because of hygiene concerns. However, Barbieri et al. (2021) showed that agritourism exposure for tourists encourages them to increase their local food consumption expenditures. This is an opportunity for beekeepers to educate the tourists on farm life, farm products, and the farm community's way of life. However, the enterprise's success hinges on the farmer's ability to effectively strengthen his business by being aware of the components of a robust tourism social enterprise and each component's functions in tandem with the other components.

## CONCLUSION

The paper aimed at developing a model for a melitourism social enterprise. Human capital is an essential driver of melitourism. With the risk involved in beekeeping, experience and enhanced knowledge are necessary to sustain an enterprise. Stingless bees can generate various by-products with wide usage; hence, there is enough space for creativity and innovations. Financial access is imperative to impart innovations in beekeeping enterprises. While stingless beekeeping is still an emerging industry in the Philippines, the state provision of economic incentives such as tax exemption, market assistance, and capital aid may facilitate its growth.

In terms of meliponiculture, food source, species, hive type, hive propagation method, and care for our natural resources are the most supported indicators regarding the number of researches conducted on these concerns. All the indicators identified under the bioecological, technological, and ethical components can be classified as either biotic or abiotic in nature. These indicators focus on the colonies' survival, abundance, and sustainability in a meliponary for bees and are considered the central element of melitourism. Transitioning from conventional beekeeping to melitourism needs careful planning on the part of the farmers. Simply having a passion for beekeeping is not enough. Bee farmers must operate within an entrepreneurial ecosystem collaborating with policymakers, residents, and organisations. The study recommends content validity, reliability test, and path analysis to data fit of the model.

Policy and strategies are the most researched topics for farm tourism. There are also existing laws and regulations to support melitourism. However, there is still a need for focused policies and regulations aligned to local development plans and cohesive with the national government goals.

Further study on testing the indicators may be explored to measure the validity and reliability of the components to actual melitourism enterprises.

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